

*California Environmental Protection Agency*

## Air Resources Board

# EMISSION INVENTORY INFORMER

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Articles from all issues of the *Emission Inventory Informer* can be found on the World Wide Web at <http://www.arb.ca.gov/emisinv/informer/inform.htm>

## ARB's Exchange Program with Germany

The ARB recently hosted Dagmar Berberich-Stieber and Volker Wehle from the Management Academy of Public Administration (FuAk) of the German State of Baden-Wuerttemberg. In October 1996, Patricia Velasco of the Emission Inventory Branch staff participated in a one-month portion of the FuAk program in Baden-Wuerttemberg. With the objective of establishing communication exchange channels for other ARB staff, Patricia also met with staff from the following German organizations that conduct work relevant to ARB's programs and policy interests:

- 1) Daimler-Benz on the technology status of electric, hybrid electric, and fuel cell powered vehicles;
- 2) BMW on the technology status of electric and hydrogen-powered conventional vehicles, the status of fuel cell development in collaboration with Siemens, and a pilot project on hydrogen production;
- 3) The Federal Environmental Agency on the labeling of environment friendly products ("Blue Angel" program) the program development and adoption of standards, and the control of solvent emissions from coatings;
- 4) The Baden-Wuerttemberg Ministry for the Environment and Transportation on proposed strategies for the reduction of emissions from motor vehicles in Germany and the European Community;
- 5) The Baden-Wuerttemberg Environmental Protection

*(continued on page 3)*

## INSIDE

Air Quality Data on the Web  
Livestock Operations  
USDA Air Quality Task Force  
Hot Spots Fees  
SSEIB Becomes EIB  
PM10 BACM Working Group  
Inventory 1A  
Streamlined Hot Spots Guidelines  
SB 2174 Inventory Workshops  
Toxics Emission Factors

## ARB's Emission Inventory on the Web

The criteria pollutant emission inventory data are now available on the ARB website:

(<http://www.arb.ca.gov/emisinv/eib.htm>).

Category specific emission data are available on a statewide, air basin, or county basis for the 1995 and 2010 forecast inventory years. To make data selection easy, point-and-click maps are available to access the available tabular data. The site also provides statewide maps that show emission levels for each county, and pie charts that show the emission contributions. The web page address shown above also allows access to pages which provide information about: the Hot Spots program; the mobile source inventory; Senate Bill 2174 (which mandates Board approval of the inventory); area source methodologies; emission inventory software; and links to other sites of interest. We appreciate any feedback on our new site and suggestions for future enhancements that you think may be useful.

Contact: Miki Miyashiro  
(916) 327-0027  
e-mail [vmiyashi@arb.ca.gov](mailto:vmiyashi@arb.ca.gov)

## Air Quality Data Web Site Now Available

The California air quality data (AQD) web site is now publicly available. The site includes summarized ozone data covering the entire State, each air basin, each district, each county, and each monitoring site. In addition, the ozone presentation includes graphical representations of statewide changes in ozone concentrations over the last 16 years. PM10 data will be added to the site within the next two months and other criteria pollutants will follow.

The AQD web site also includes statewide and site-by-site summaries of toxics data. Additionally, site visitors have the opportunity to download the raw toxics data. There are currently ten toxic substances represented on the site, with the number growing steadily. Ultimately, summaries for about 50 toxic substances will be available.

You can visit the air quality data web site at <http://www.arb.ca.gov/aqd/aqd.htm> or via the ARB home page.

Contact: Ron Rothacker  
(916) 324-7672  
E-mail: [aqdweb@arb.ca.gov](mailto:aqdweb@arb.ca.gov)

## Hot Spots Fee Regulation Approved

On April 22, 1997, the Office of Administrative Law approved the Fee Regulation for fiscal year 1996-97 for the Air Toxics Hot Spots Program. The effective date for the Fee Regulation is also April 22, 1997, pursuant to an ARB request for an early effective date. The Fee Regulation authorizes the districts to collect fees to support both the district and State activities to implement the Program. It also sets the facility-specific fees in districts that have requested the ARB to adopt their fee rules for them. A copy of the Fee Regulation text is available by calling (916) 322-6021 or from the ARB's web site at <http://www.arb.ca.gov/ab2588/ab2588.htm>.

Contact: Krista Eley  
(916) 327-0157



## Quote - Unquote

“‘Final Emission Inventory’ is an oxymoron.”

-Dale Shimp, Manager of the ARB's Emission Inventory Analysis Section

## Tour of Livestock Operations

The Emission Inventory Branch has begun work on the development of a statewide ammonia emission inventory. Ammonia combines with oxides of nitrogen in the atmosphere to produce fine particulate matter. It is believed that significant quantities of ammonia occur from the decomposition of livestock wastes. To increase our understanding of these emission sources, staff from the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) arranged for ARB staff and SJVUAPCD staff to visit a turkey farm, a cattle feedlot, a pig farm, and a dairy. Representatives from each facility were on hand to lead the tours of each facility, as were experts from the University of California Agricultural Extension and the University of California at Davis.

Tours of each facility were fascinating in terms of the magnitude of the operations (78,000 head of cattle at a single feedlot; 27,000 pigs at one pig farm), as well as the science that is applied in maintaining the animal's physical health and optimum productivity. We also saw how the methane generated from pig wastes could be inexpensively captured and used to produce enough electricity to run the entire pig livestock operation with extra energy left over to sell back to the electric utility. Due to the quantity and variability of livestock operations, the tour made it clear that estimating ammonia emissions from these sources will be challenging. As our efforts proceed, we intend to work closely with the various livestock producers to ensure we create the best available emission estimates.

Contact: Patrick Gaffney  
(916) 322-7303

## **Germany**

*(continued from page 1)*

Agency and the Association for Environmental Measurements and Research on out-sourcing of environmental monitoring;

6) The Karlsruhe Research Center in Baden-Wuerttemberg on research programs in ozone formation, transport, and health effects; and

7) The Baden-Wuerttemberg Center for Solar Energy and Hydrogen Research on testing of batteries intended for electric vehicles and fuel cell research plans.

Since her return, Patricia has been and continues to share the gathered information with ARB staff through presentations and providing written materials.

Contact: Patricia Velasco  
(916) 327-8170

## **USDA Air Quality Task Force**

Dale Shimp of the Emission Inventory Branch staff was invited to speak before the USDA Agricultural Air Quality Task Force (AAQTF). The meeting was held in Fresno on June 17. This task force was established as part of the 1996 Farm Bill. The mission of the task force is to make recommendations to USDA and U.S. EPA on ways to get agricultural input into environmental policy making decisions.

Dale was asked to share the the innovations and successes the ARB has had in working with the agricultural community to improve our estimates of PM10 emissions from agricultural activities. The task force, a group of twenty nationally recognized authorities in agricultural practices and air quality issues, was very interested and encouraged to hear about the good working relationships the ARB and SJV District staff developed with the agricultural industry.

*(continued on page 4)*

## **PM10 BACM Working Group**

Staff of the Emission Inventory Branch attended the quarterly meeting of the interagency PM10 BACM working group held at the South Coast Air Quality Management District in Diamond Bar, California. The meeting included updates on the PM10 SIP process from representatives from Nevada, Arizona, and California, as well as U.S. EPA.

With most of the SIPs for PM10 nearing completion, group members discussed future work activities. These will include sharing emission inventory improvements, cooperating on control effectiveness and rule implementation issues, evaluating future research needs and seeking U.S. EPA funding, examining transport effects and modeling needs, and continuing to track the new national PM standards and their ramifications. The next BACM meeting will be held in August in San Francisco.

Contact: Patrick Gaffney  
(916) 322-7303

## **SSEIB Becomes EIB**

The Stationary Source Emission Inventory Branch has been renamed the Emission Inventory Branch and has reshuffled project assignments within the branch to better reflect current priorities. In the two largest changes, the emission forecasting function was moved from the Emission Inventory Analysis Section to the Emission Inventory Systems Section and responsibility for most of Miscellaneous Area-Wide Source Categories as well as PM10 and biogenics moved from the Emission Inventory Methods Section to the Emission Inventory Analysis Section. Area sources, application of geographic information systems to emission inventories, and consolidation of criteria and toxic inventories were identified as major priorities for the branch. A summary of each section's project assignment is as follows:

Emission Inventory Branch  
Chief: Linda Murchison

Emission Inventory Systems Section  
Manager: Dennis Goodenow  
CEIDARS Development, Emission Forecasting, Criteria and Toxics Data Consolidation.

Emission Inventory Methods Section  
Manager: Richard Bode  
Area Source Methods Development, Toxic Hot Spots Fees, Toxic Hot Spots Inventory Guidelines, Consumer Products.

Emission Inventory Analysis Section  
Manager: Dale Shimp  
PM10, Agricultural Activities, Biogenics Methods Development, Emission Inventory Support for Modeling and Air Quality Studies, Development of GIS Methods to Analyze Emission Inventories, Emissions Chemical Speciation and Reactivity, Federal Clean Air Act Support.

# Inventory 1A

or

## An Overview of Emission Inventory Development in California

The ARB has collected information on emissions from air pollution sources since 1969. This information is periodically compiled by State and local air pollution control agencies to create an emission inventory — an important building block in the development of the State's air pollution control program.

The staff at the Emission Inventory Branch compiles data to create the criteria pollutant emission inventory which includes information on the emissions of reactive organic gases (ROG), oxides of nitrogen (NO<sub>x</sub>), oxides of sulfur (SO<sub>x</sub>), carbon monoxide (CO), and particulate matter (PM<sub>10</sub>). Data are gathered on an ongoing basis and stored in the California Emission Inventory Development and Reporting System II (CEIDARSII). A summary of the criteria pollutant inventory is published annually. The California emission inventory contains information on the following air pollution sources:

\* Stationary sources - approximately 11,000 individual facilities, called point sources. Point sources are fixed pollution sources such as electric power plants and refineries. There are also about 135 aggregated point source categories. These categories include emissions for non-point source stationary sources;

\* Area-wide sources - approximately 80 source categories. An area-wide source category is made up of sources of pollution mainly linked to the activity of people. Examples of these sources include consumer products and architectural coatings; and

\* Mobile sources - all on-road vehicles, largely those that are licensed such as automobiles and trucks; off-road vehicles such as trains, ships, aircraft; and farm equipment.

The principal agencies contributing to the stationary and area-wide source inventory are the ARB and the California air pollution control and air quality management districts. The ARB, the California Department of Transportation (Caltrans), and regional transportation agencies are the principal agencies involved in developing the mobile source inventory.

The ARB also collects toxic emissions from facilities of high risk in California. The toxic pollutant inventory is updated every four years and is stored in the Air Toxics Emission Data System (ATEDS). In the near future, the toxic emission inventory data will be merged with the criteria pollutant data in CEIDARS II.

The information represented in the California emission inventory is a snap-shot of a variety of dynamic and variable processes. As such, the emission inventory can only represent an estimate of what is actually occurring. Due to the importance of the inventory in air quality planning and management, the ARB and local air pollution control agencies are working together to further refine estimation methods to improve the inventory.

### How to Request Data from the Emission Inventory Branch

The Air Resources Board, Emission Inventory Branch is the keeper and focal point for all California emissions data. Members of the public, regulatory agencies, industry groups, and environmental groups can receive emissions data for all non-confidential data which is ready for release. There is a fee for this service. If you wish to request emissions data, either criteria or toxic pollutants, please contact us via e-mail at [eibweb@arb.ca.gov](mailto:eibweb@arb.ca.gov) or call (916) 322-6271.

*The above article can also be found on the ARB's web site at <http://www.arb.ca.gov/emisinv/emsmain/general.htm>*

## USDA

*(continued from page 3)*

It was emphasized by members of the task force that the best results are typically obtained when cooperative relationships are built between the regulators, scientists, and agricultural experts. Our experience with the San Joaquin Valley agricultural producers certainly supports this assertion. The Task Force meeting was covered by the Associated Press and included an article in the Fresno Bee with a photo showing Dale speaking to the Task Force members. We are looking forward to seeing how the actions of this group can improve our understanding of the relationships between agricultural activities and air quality.

## New Hot Spots Guidelines Regulation Streamlines Reporting Requirements

The Emission Inventory Criteria and Guidelines Report, dated May 15, 1997, for the Air Toxics "Hot Spots" program became effective July 1, 1997, after approval by the Office of Administrative Law (OAL). The report reflects streamlining provisions to the Hot Spots program, which were approved by the Air Resources Board (ARB) in July 1996, and legislative streamlining provisions that were made to the Air Toxics "Hot Spots" statute by AB 564 and signed into law in September 1996.

The recently approved amendments to the Guidelines Report include streamlining provisions to exempt many facilities, which pose little or no risk to public health, from further requirements and to focus the Hot Spots reporting on the sources and substances of greatest concern.

The amendments are part of an overall effort by the Air Resources Board over the past several years to streamline the Hot Spots program, including reducing the program costs and exempting many facilities from fees. The Guidelines Report amendments were developed with extensive public consultation and input from the air pollution control and air quality management districts, the Office of Environmental Health Hazard Assessment (OEHHA), and working groups of industry, environmental, and health organization representatives.

The Guidelines Report provides specifications for affected facility operators to use in preparing site-specific emission inventories of air toxic releases required under the Air Toxics "Hot Spots" Information and Assessment Act of 1987 and subsequent amendments (the Act; Health and Safety Code sections 44300-44394). The Act established the Hot Spots program to inform and protect the California public from exposures to toxic air pollutants and to assess the public health risk to those who are exposed. The Act requires that facility operators inventory routine emissions of toxic substances into the air using the ARB's Guidelines, that each facility be prioritized to determine whether a health risk assessment must be conducted, that risk assessments be conducted according to methods developed by OEHHA, that the public be notified of potentially significant risks posed by nearby facilities, and that potentially significant risks be reduced.

The Guidelines Report specifies: (1) types of facilities that must report and update their emission inventory; (2) emission data to submit; (3) methods for quantifying emissions, including source test requirements where appropriate; and (4) the list of toxic substances for which emissions must be reported.

In particular, the amendments include provisions to:

- exempt over 2,000 low priority facilities from the Hot Spots program under the revised statute, and further exempt remaining "low level" facilities from update reporting of emissions;
- streamline update reporting for "intermediate level" and "high level" facilities;
- define criteria to reinstate reporting for exempted facilities if changes occur that increase the risk;
- allow integration of Hot Spots reporting requirements with other reporting programs already being conducted by the districts, including district permit programs and merged toxics and criteria pollutant inventory reporting;
- consolidate and revise Appendix E, which lists the classes of facilities emitting less than 10 tons per year of criteria pollutants that are included in the Hot Spots program: define *de minimis* levels for facility classes and exclude low level facilities; include facilities identified by the district as posing a potential public health risk;
- include other clarifications and modifications to conform with the amended statute.

The May 1997 Guidelines Report is available from the Emission Inventory Branch by calling (916) 322-6021, or from the ARB's web site at <http://www.arb.ca.gov/ab2588/ab2588.htm>. For questions on the Guidelines Report, call Richard Bode, Manager, Emission Inventory Methods Section at (916) 322-3807, or Kirk Rosenkranz at (916) 322-7673, who is taking over as leadperson on the Guidelines Report for future revisions.

*(This article was written by Beth Schwehr, former leadperson for the Guidelines Report.)*

## **SB 2174 Inventory Workshops**

ARB staff from the Technical Support, Mobile Source Control, and Monitoring and Laboratory Divisions along with Metropolitan Planning Organizations, Councils of Governments, and California Air Pollution Control Districts presented the California Emission Inventory process to the general public on April 1 and 8, 1997. The workshops focused on the emission inventory process, roles and responsibilities, the sources of data, the improvements in progress, and the ongoing research to develop a better understanding of the relationship between the emission inventory and ambient air quality data. These workshops were in response to the enactment of SB 2174 last year, which requires the ARB to approve the California Emission Inventory every three years.

There was a joint session to discuss general emission inventory issues, and then two breakout sessions: one for mobile sources, and the other for stationary, area-wide, and non-anthropogenic sources. The breakout sessions dealt with specific issues and concerns.

Additional workshops on emission verification and mobile source emissions were held on July 2 and July 11, respectively. The emission verification workshop was held in Sacramento, and the mobile source workshop was held in Los Angeles.

The verification discussion explored three approaches to verifying emission data: air quality vs. emission data, tunnel studies, and fuel consumption. Work is ongoing to develop new and improved emission verification methods.

As a follow up to the April SB 2174 workshops, the Emission Inventory Branch held a meeting of the newly formed Stationary Source Emission Inventory Industry Working Group on June 24. This working group was established to provide industry an opportunity to have input into the emission inventory development process. Persons wishing to participate in this working group should contact Dennis Goodenow at (916) 445-4292 or April Nitsos at (916) 322-6159.

## **Development of Toxics Emission Factors - Part II**

The ARB has recently contracted with Energy and Environmental Research (EER) to develop further air toxics emission factors from source test data collected under the Air Toxics "Hot Spots" Program (AB2588).

Under a previous contract with ARB, EER collected over 800 reports of source tests conducted under AB2588 and, from a selection of 201 priority tests, calculated over 1500 emission factors. Emission factors for trace metals (e.g., hexavalent chromium), polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofuranes (PCDD/PCDF), polycyclic aromatic hydrocarbons (PAH), other semi-volatile organic compounds (SVOC), benzene, toluene, other VOCs, aldehydes and HCl were developed for a wide range of devices including asphalt blowers, boilers, cement kilns, coating operations, heaters, metal furnaces, internal combustion engines, and turbines, among others. EER constructed a graphical user interface, the California Air Toxics Emission Factors (CATEF) database, to display these emission factors and allow users to sort, list, print, and report them.

The objectives of the new contract (Part II) are to: 1) collect source test reports from the districts that received any after the previous collection (Ventura, Santa Barbara, South Coast); 2) develop emission factors from all source test reports (remaining from Phase I plus newly collected) containing valid data; and 3) enhance the CATEF database to make it more useful and user-friendly (e.g. improve online instructions for installation and usage; improve sorting capabilities; include a help page with description of statistical variables). The plan is to kick-off this contract in July of 1997. The project is expected to last 20 months.

Contact: Patricia Velasco  
(916) 327-8170  
E-mail [pvelasco@arb.ca.gov](mailto:pvelasco@arb.ca.gov)

*The above article is a followup to "Air Toxics Emission Factors", which was published in the Informer in the Summer 1996 issue. The article can be found on the World Wide Web at the address shown on page 1 of this issue.*

**The *Emission Inventory Informer* is published by the Emission Inventory Branch, Technical Support Division, California Air Resources Board, with occasional contributions from other staff at the ARB. Inquiries should be addressed to:**

**Air Resources Board  
Technical Support Division  
P. O. Box 2815  
Sacramento, CA 95812  
Attention: Don Drake  
(916) 322-7304; e-mail: [drake@arb.ca.gov](mailto:drake@arb.ca.gov)  
FAX (916) 323-1075**

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Technical Support Division  
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